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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,308	10/24/2001	M. Parameswara Reddy	2058-181	8198

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PATENT LEGAL DEPARTMENT/A-42-C
BECKMAN COULTER, INC.
4300 N. HARBOR BOULEVARD
BOX 3100
FULLERTON, CA 92834-3100

EXAMINER

BAKER, MAURIE GARCIA

ART UNIT PAPER NUMBER

1639

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

FILE

Office Action Summary

Application No.

10/033,308

Applicant(s)

Reddy et al

Examiner

Maurie G. Baker

Art Unit

1639



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 23, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above, claim(s) 16, 17, and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 1.5 6) ☐ Other:

DETAILED ACTION

1. The Response filed December 23, 2002 (Paper No. 4) is acknowledged. Claims 4, 5 and 19 were amended and no claims were cancelled or added. Therefore, claims 1-19 are pending.

Election/Restriction

2. Applicant's election, with traverse, of Group I (claims 1-15 and 18) and election of species in Paper No. 4 is acknowledged. The traversal is addressed below.

3. Applicant argues that the amendment of claim 19 that deleted the phrase "organic molecule" and replaced it with "biological molecule" "obviates the Examiner's basis for Restriction between Groups I and III" (Response, page 10). However, this was not the only reason for restriction between these groups, in fact, it was not noted as the most important reason. See the following from the Restriction Requirement, paragraph 4 (emphasis added):

4. *Groups I and III are drawn to different methods. The methods are different because they use different steps, require different reagents and/or will produce different results. They therefore have different issues regarding patentability and enablement and represent patentably distinct subject matter. In the instant case, the method of Group I is for attaching a biological molecule having at least one reactive amino, thiol or hydroxyl group to a solid support and the method of Group III is for attaching an organic molecule to a solid support. Most importantly, the method of Group I requires a specific activating compound that is not required by the method of Group III as well as specific reactive moieties on both the biological molecule and the solid support. No such specific moieties are required in Group III.*

4. As the claim of Group III has been amended, Groups II and III are now related as process of making and product made. As for Groups I and II, the inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product of Group II (solid-support attached to a biological molecule) could be made by a myriad of different chemical reactions that do not specifically involve activating the solid support and/or that require different steps, such as by activating the biological molecule itself.

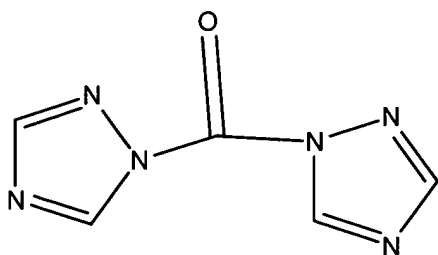
5. Applicant argues that the restriction is improper because the claims are “classifiable and searchable together” (Response, page 11). The examiner maintains that art anticipating or rendering obvious each of the above-identified groups respectively would not necessarily anticipate or render obvious another group, because they are drawn to different inventions that have different distinguishing features and/or characteristics. The different inventions have acquired a separate status in the art as shown by their different classification and/or divergent subject matter. The different inventions would require completely different searches in both the patent and non-patent databases, and there is no expectation that the searches would be coextensive. Therefore, this does create an undue search burden. The requirement is still deemed proper and is therefore made FINAL.

6. Claims 16, 17 and 19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions.

7. Claims 1-15 and 18 read on the elected invention and species and are examined on the merits in this action.

8. Applicant's specifically elected species "1,2,4-carbonyl di-triazole" {see below} was searched and was found in the prior art. Thus, the search was **not** expanded to non-elected species. See MPEP § 803.02.

9. The following is noted for the record. Applicant is denoting the compound below as "1,2,4-carbonyl di-triazole" or "1,2,3-carbonyl di-triazole" (see Response, pages 2 and 12):



This compound is more commonly known in the art as N, N'-carbonyl di-1,2,4-triazole; 1,1'-Carbonylbis(1,2,4-triazole); 1,1'-Carbonyldi(1,2,4-triazole) or Carbonyldi(1,2,4-triazole). See art cited below and attached copy of the record from the CAS Registry database for RN = 41864-22-6.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites “the circular spot”. There is insufficient antecedent basis for this recitation in the claim as there is not mention of a “circular spot” in claim 1 (on which claim 5 depends).

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-4, 9-15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Stolowitz et al (WO 87/06586).

Stolowitz et al disclose a method of reacting molecules with amine-containing, activated supports (see Abstract). Specifically, amine-containing supports of Stolowitz such as aminopropyl silica gel (see, e.g. Example 1 and also page 3, lines 14-18) read on the claimed solid support having at least one

available amino group. These amino groups are activated using "N,N'-carbonyldiimidazole (CDI) or a related azolide" (see page 3, lines 18-20). These read on the claimed activating compound having the structure L_1-X-L_2 where X is a carbonyl and L_1 and L_2 are azole rings. Applicant's specifically elected species is disclosed by the reference on page 10, line 5. This reads directly on the instant claims 2-4 and 13-15. The reference discloses reacting the activated supports with amine containing compounds, see page 3, lines 21-26. In Example 1 of Stolowitz et al, glycine is reacted with an activated support. Glycine reads on the claimed biological molecule having at least one reactive amino group. The activation occurs in methylene chloride with triethylamine added, reading directly on instant claims 9 and 10 (see, e.g. Example 1, lines 8-11). The support is washed after activation, reading on instant claim 18 (see, e.g. Example 1, lines 14-16). The coupling (in Example 1 of glycine, lines 16-18) is performed in a sodium carbonate buffer, reading on instant claim 11.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-6, 9-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stolowitz et al, as set forth above, in view of Milton (US 6,146,833; of record).

The teachings of Stolowitz et al are set forth *supra*. The reference teaches a method of reacting molecules with amine-containing, activated supports that reads on the claimed method.

Stolowitz et al lacks the specific teaching of depositing compounds in a particular area on the support (i.e. using printing).

However, the use of printing techniques to deposit biological compounds onto solid supports was well established in the art at the time of filing, as evidenced by the teachings of Milton (see for example, column 12, lines 24-41). The reference teaches methods for printing compounds to make an array. See

Examples 5 and 6 (note this procedure is *referred to in the instant specification*, pages 9 and 10).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the chemistry of Stolowitz et al for the activation of a amine-containing support for reaction with an amine compound in an array-type format using printing to deliver the amine compound as taught by Milton. One of ordinary skill would have been motivated to do so due in order to create compounds “immobilized at site specific locations” as taught by Milton. One of ordinary skill would have had a high expectation of success as these printing techniques were well established in the art at the time of filing.

17. Claims 1-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stolowitz et al, as set forth above, in view of Milton (US 6,146,833; of record), Okamoto et al (US 6,476,215) and Guo et al (Nuc. Acids Res. 1994, pp. 5456-5465).

The teachings of Stolowitz et al are set forth *supra*. The reference teaches a method of reacting molecules with amine-containing, activated supports that reads on the claimed method.

Stolowitz et al lacks the specific teaching of depositing compounds in a particular area on the support (i.e. using printing) and of using a humid chamber.

However, the use of printing or spotting techniques to deposit biological compounds onto solid supports was well established in the art at the time of filing, as evidenced by the teachings of all of Milton, Guo and Okamoto. The references

all teach methods for spotting or printing compounds to make an array. See Milton, column 12, lines 24-41 and Examples 5 & 6 (note this procedure is referred to in the instant specification, pages 9 and 10); Guo et al, page 5457, 1st column; and Okamoto et al, columns 1-3.

Moreover, Guo and Okamoto teach using a humid chamber during the attachment of the probes to their arrays. See Guo, page 5457, 1st column; and Okamoto et al, column 18, lines 42-46, for example. This step is used to complete the reaction and/or to incubate the arrays.


Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the chemistry of Stolowitz et al for the activation of a amine-containing support for reaction with an amine compound in an array-type format using printing or spotting to deliver the amine compound as taught by any of Milton, Guo and Okamoto. One of ordinary skill would have been motivated to do so due in order to create compounds “immobilized at site specific locations” as taught by Milton (for example). Furthermore, it would have also been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use a humid chamber to complete the reaction and/or to incubate the arrays once created. These techniques were also well established in the art as taught by Guo and Okamoto. One of ordinary skill would have had a high expectation of success as these printing and reaction techniques were well established in the art at the time of filing.

Status of Claims/Conclusion

18. No claims are allowed.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurie Garcia Baker, Ph.D. whose telephone number is (703) 308-0065. The examiner is on an increased flextime schedule but can normally be reached on Monday-Thursday and alternate Fridays from 9:30 to 7:00.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang, can be reached at (703) 306-3217. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.


MAURIE GARCIA BAKER PH.D
PRIMARY EXAMINER 3/20/03